Ref. 1

PATENT ABSTRACTS OF JAPAN

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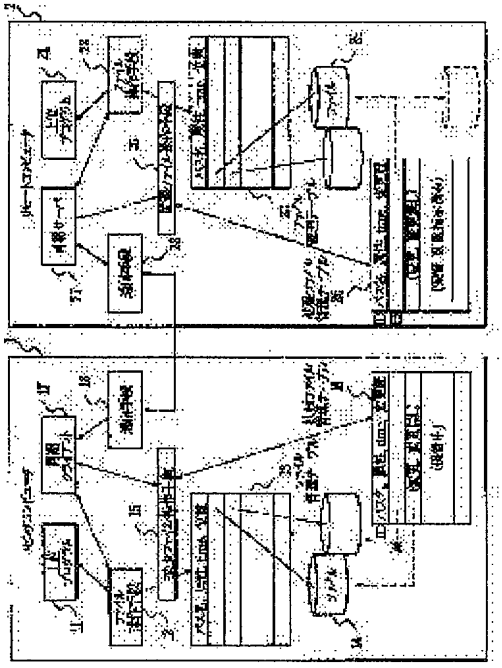
(54) SYNCHRONIZATION SYSTEM AND METHOD FOR DISTRIBUTED FILE

(57)Abstract:
PROBLEM TO BE SOLVED: To reduce a data transfer amount in a synchronization processing and to clarify the distinction of elimination and center keeping by providing an extension file management table for making the identification information of the substance of a file correspond to a file name and managing an updating state.
SOLUTION: The extension file management tables 16 and 26 for making the identification information of the substance of the file correspond to the file name and managing the updating state of contents change, name change and the elimination, etc., to the substance are provided. For a center (remote) computer 1 (2), a state is managed by an identification information ID in the extension file management tables 16 and 26 for the respective substances of the tiles 14 and 24 managed on file management tables 13 and 23. For instance, for the file whose contents are changed after synchronization execution, the time and contents are managed by the file management tables 13 and 23 and extension file operation means 15 and 25 which detect the processings of file operation means 12 and 22 record the contents change to the entry of the pertinent file name of the extension file management tables 16 and 26.



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...omitted...

[0012]

In the embodiment shown in Fig. 1, a center computer 1 and a remote computer 2 are usually used independently of each other. Since processing performed in that occasion is identical, an explanation will be given for center computer 1. An upper program 11 provides an instruction for file operation via file operation means 12 in the same way as in a conventional stand-alone system. To each entity of a file 14 managed on a file management table 13, identification information ID is assigned at some point in time in an extension file management table 16, and the states are managed. For a file having its contents changed after synchronization is performed, the time and the contents thereof are managed in file management table 13, and extension file operation means 15, after detecting the processing of file operation means 12, records the change in the contents in an entry of the name of the file in extension file management table 16. Further, when a file is newly prepared, extension file operation means 15 similarly assigns a new ID to the file and registers it in extension file management table 16. The newly prepared file maintains the new state even when it is changed by the time when synchronization is performed, and if deletion is instructed, it is immediately erased from extension file management table 15 and file management table 13. For an instruction to change a file name or to change a path name such as to move a directory, file operation means 12 changes only the path name of the entry in file management table 13 and does not update the time, whereas extension file operation means 15, after detecting the instruction to change the name, changes the name of the entry and records the name change state. For a deletion instruction, deletion from file management table 13 is performed, and file 14 of interest is also erased as in conventional stand-alone processing. However, the entry remains in extension file management table 16, and the

deletion state is recorded. Further, for a file to be stored only in center computer 1 and to be erased from remote computer 2, even during independent operation, a user provides an instruction to a synchronous client 17 and a synchronous server 27, and records the file in extension file management tables 16, 26 via extension file management means 15, 25, with file management tables 13, 23 unchanged.

[0013]

To synchronize a file between center computer 1 and remote computer 2, firstly, the both computers are connected using communication means 18, 28. Synchronous client 17 requests update information to synchronous server 27, and then synchronous server 27 sends a list of the contents of the entry for which a state change has been recorded in extension file management table 28. Synchronous client 17 compares the list with the entry having the corresponding ID in its own extension file management table 16, and refers to the entry for which a state change has been recorded in its own extension file management table 16, to determine processing required in each computer for synchronization. If one has no change and the other has a change, changed contents are transferred via communication means 18, 28 to be reflected, and if both have changes, the change having the later time is employed. If deletion is recorded, an actual file is deleted, and the file is erased from the both computers. For a new file, ID uniqueness is maintained, for example, by performing processing to maintain an ID in remote computer 2 and retrieve and assign an empty ID in extension file management table 26 of center computer 1. As for name change, the name in the entry in file management table 12, 22 and extension file management table 16, 26 of the other computer is changed, and data transfer is not performed. If a store instruction is recorded, the storage state is recorded in the entry in extension file management table 16 of center computer 1, and the file is erased in remote computer 2 via file operation means 22. However, the entry is left in extension file management table 26 to prepare for an instruction to cancel storage in remote computer 2.

[0014]

After synchronous client 17 determines synchronous processing, synchronous client 17 and synchronous server 27 work together to perform the operations as described above, and then reset the states of respective extension file management tables 16, 26 to "no change" or "already stored", to prepare for subsequent synchronous processing.

...omitted...

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Fig 1

【図1】